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DIVISION 09 - FINISHES

SECTION 09260

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06/04

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NASA-09260 (June 2004)
NATIONAL AERONAUTICS NASA
AND SPACE ADMINISTRATION Superseding NASA-09260
(October 2003)

SECTION 09260

GYPSUM BOARD ASSEMBLIES
06/04

NOTE: Delete, revise, or add to the text in this section to cover project requirements. Notes are for designer information and will not appear in the final project specification.

This section covers steel framed, nonload-bearing, gypsum wallboard partitions and ceilings, predecorated gypsum wallboard, gypsum wallboard over wood stud partitions and ceilings, fire-rated gypsum wallboard ceilings and walls, and column fireproofing.

This material is not recommended for the following uses:

Where extreme or frequent exposure to water is expected

As a base to receive plaster or where abrasion or impact is expected

The 3/8-inch 9.5 millimeter thick gypsum wallboard in single ply construction must not be used on framing members spaced more than 16 inches 400 millimeter on center.

The 1/2- and 5/8-inch 12.7 and 15.9 millimeter thick gypsum must not be used on framing members spaced more than 24 inches 600 millimeter on center.

Drawings must indicate wallboard thickness, required fire rating, required sound transmission classification, location, and wall assembly details.

Steel frames for doors, light frames, access doors, and panels are specified in Division 8, "Doors and Windows."

PART 1 GENERAL

1.1 REFERENCES

NOTE: The following references should not be manually edited except to add new references.

References not used in the text will automatically
be deleted from this section of the project
specification.

The publications listed below form a part of this section to the extent
referenced:

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
(AASHTO)

AASHTO M 111 (1990) Standard Specification for Zinc
(Hot-Dip Galvanized) Coatings on Iron and
Steel, Products

ASME INTERNATIONAL (ASME)

ASME B18.2.1 (1996) Square and Hex Bolts and Screws,
Including Hex Cap and Lag Screws (Inch
Series)

ASME B18.2.2 (1987; R 1999) Square and Hex Nuts

ASME B18.2.3.7M (1979; R 2001) Metric Heavy Hex Screws

ASME B18.2.4M (1979; Rev 1989) Metric Hex Nuts

ASTM INTERNATIONAL (ASTM)

ASTM A 1011/A 1011M (2004) Steel, Sheet and Strip, Hot-Rolled,
Carbon, Structural, High-Strength
Low-Alloy and High-Strength Low-Alloy with
Improved Formability

ASTM A 641/A 641M (2003) Standard Specification for
Zinc-Coated (Galvanized) Carbon Steel Wire

ASTM C 36 (1995) Gypsum Wallboard

ASTM C 442/C 442M (2004) Gypsum Backing Board, Gypsum
Coreboard, and Gypsum Shaftliner Board

ASTM C 473 (2003) Physical Testing of Gypsum Board
Products and Gypsum Lath

ASTM C 475/C 475M (2002) Joint Compound and Joint Tape for
Finishing Gypsum Board

ASTM C 514 (2001) Standard Specification for Nails
for the Application of Gypsum Board

ASTM C 515 (1995; R 2001) Chemical-Resistant Ceramic
Tower Packings

ASTM C 553 (2002) Standard Specification for Mineral
Fiber Blanket Thermal Insulation for
Commercial and Industrial Applications

ASTM C 557 (2003) Adhesives for Fastening Gypsum

Wallboard to Wood Framing

ASTM C 630/C 630M	(2003) Water-Resistant Gypsum Backing Board
ASTM C 645	(2004) Nonstructural Steel Framing Members
ASTM D 2103	(2003) Standard Specification for Polyethylene Film and Sheeting
ASTM E 119	(2000a) Standard Test Methods for Fire Tests of Building Construction and Materials
ASTM E 84	(2003) Standard Test Method for Surface Burning Characteristics of Building Materials
ASTM E 90	(2002) Standard Test Method for Laboratory Measurement of Airborne-Sound Transmission Loss of Building Partitions

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 101	(2003) Life Safety Code (National Fire Codes, Vol 5)
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SHEET METAL & AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA)

SMACNA 1793	(2003) Architectural Sheet Metal Guideline
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1.2 SYSTEM DESCRIPTION

Manufacturer's catalog data shall be submitted Special Framed Openings and Rated Wallboard Assemblies, meet in all design specifications as required by referenced standards within this section. Data shall include fire ratings, sound transmission classification, and permeance requirements where applicable.

Certificates shall be submitted for gypsum wallboard systems indicating that the proposed materials meet or exceed the project specifications and the listed reference specifications.

1.2.1 Partition Configurations

1.2.1.1 Single-Layer Partitions

[Single-layer drywall partitions shall be [fire-retardant] gypsum wallboard, thickness as indicated.]

[Furred drywall on exterior masonry walls shall be [insulated] [fire retardant] gypsum wallboard, thickness as indicated.]

[Single-layer drywall partitions shall be predecorated gypsum wallboard with bevel or square joints and thickness as indicated. Edges, joints, battens, and trim shall be extruded aluminum with matching vinyl finish.]

1.2.1.2 Double-Layer Partitions

[Double-layer drywall partitions shall consist of two layers of fire-retardant gypsum wallboard, thickness as indicated.]

[Double-layer drywall partitions shall consist of a face layer of regular gypsum wallboard, thickness as indicated, and a base layer of gypsum backing board, as indicated.]

[Double-layer drywall partitions shall consist of a face layer of bevel or square-joint predecorated gypsum wallboard and a base layer of gypsum backing board, thickness as indicated. Edges, battens, and trim of predecorated wallboard shall be extruded aluminum with matching vinyl finish.]

1.2.2 Performance Requirements

1.2.2.1 Fire Retardant Requirements

Type X gypsum wallboard shall provide at least 1 hour fire-retardant rating for 5/8-inch 15.9 millimeter thick material or 3/4-hour fire-retardant rating for 1/2-inch 12.7 millimeter material when applied in single-layer, nailed on each face of load-bearing, wood framing members, and when tested in accordance with ASTM E 119.

When tested in accordance with ASTM E 84, gypsum wallboard shall have a maximum flame-spread rating of 15, fuel contributed 15, and smoke developed 15.

1.2.2.2 Ceiling Assembly Fire Ratings

Gypsum drywall ceiling and [floor] [roof] assembly shall have a fire rating of [1] [2] [3] hour[s]. Drywall construction shall be in accordance with the UL design and test as listed by the drywall manufacturer.

1.2.2.3 Permeance Requirements

Back gypsum wallboard shall meet the permeance requirements specified in ASTM C 36.

1.2.2.4 Sound Transmission Classifications

Sound transmission classification (STC) shall be as published by the gypsum wallboard manufacturer. Classifications shall be established in accordance with ASTM E 90 and shall reflect acoustical performance values obtained in laboratory tests by a recognized independent acoustical laboratory.

Gypsum drywall ceiling shall have an STC of [45 to 50] [40 to 45] [35 to 40].

1.3 SUBMITTALS

NOTE: Review submittal description (SD) definitions in Section 01330 SUBMITTAL PROCEDURES and edit the following list to reflect only the submittals required for the project. Submittals should be kept to the minimum required for adequate quality control. Include a columnar list of appropriate

**products and tests beneath each submittal
description.**

The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES in sufficient detail to show full compliance with the specification:

SD-02 Shop Drawings

Fabrication drawings shall be submitted for the following items consisting of fabrication and assembly details to be performed in the factory.

Hangers and Inserts
Channels
Resilient Channels
Steel Stud Framing
Metal Accessories
Trim
Suspension
Furring

Installation drawings shall be submitted for gypsum wallboard systems in accordance with paragraph entitled, "Erection, Installation, and Application," of this section.

SD-03 Product Data

Manufacturer's catalog data shall be submitted for the following items including fire ratings, sound transmission classification, and permeance requirements where applicable.

Gypsum Wallboard
Furring
Hangers and Inserts
Suspension
Channels
Resilient Channels
Joint Tapes
Compounds
Steel-Stud Framing
Metal-Framed Drywall Ceilings
Fasteners
Adhesives
Floor and Ceiling Runners

Manufacturer's catalog data shall be submitted for the following items in accordance with paragraphs entitled, "Framed Openings" and "System Description," of this section.

Special Framed Openings
Rated Wallboard Assemblies

SD-04 Samples

The following samples shall be submitted:

Gypsum Wallboard: Three full-size samples of each type.

Steel-Stud Framing: Three samples each, 8-inches 200 millimeter long.

Fasteners: Three 12-inch 300 millimeter square samples of each type of gypsum wallboard

Trim: Three samples each, 8 inches 200 millimeter long

SD-07 Certificates

Certificates shall be submitted for gypsum wallboard systems in accordance with paragraph entitled, "System Description," of this section.

1.4 DELIVERY, HANDLING, AND STORAGE

Materials shall be protected from weather, soil, and damage during delivery, while stored, and during construction.

Materials shall be delivered in the manufacturer's original packages; containers or bundles shall bear the brand name and the name of the manufacturer.

Materials shall be stored in dry, weathertight, and properly ventilated areas.

Gypsum wallboard shall be neatly stacked flat, with care taken to avoid sagging or damage to edges, ends, and surfaces.

Wallboard delivered to the building shall be kept protected and banded with midpoint slat spaces of 2 by 1/2-inch 50 by 13 millimeter material extended full width between each layer of gypsum wallboard.

1.5 PROJECT/SITE CONDITIONS

1.5.1 Environmental Requirements

1.5.1.1 Temperature

A temperature of not less than 55 degrees F 13 degrees C shall be provided in areas of work during the application of the materials and shall be maintained until the joint treatment compounds are dry.

1.5.1.2 Ventilation

Ventilation shall be provided to eliminate moisture within the building.

1.5.1.3 Moisture Control

Gypsum wallboard installation and joint treatment shall be accomplished in a uniform temperature with sufficient ventilation to ensure that throughout the application period the wallboard moisture does not exceed 8 percent.

Wallboard that has a moisture content in excess of 8 percent shall not be installed.

1.5.2 Field Measurements

Field measurements shall be taken before installation of materials to verify the indicated dimensions and to ensure proper fit of the work.

PART 2 PRODUCTS

2.1 WALLBOARD MATERIALS

2.1.1 General Requirements for Wallboard

Gypsum wallboard shall conform to ASTM C 36 of grade and form as specified for each type of board. Wallboard shall be 48-inches 1200 millimeter wide, shall have thickness as indicated, and a maximum practical length for end use.

2.1.2 Ceiling

NOTE: Drawings must indicate board thickness and type (if more than one type is required); control joint location and details; trim details and special conditions, required fire rating and sound isolation rating.

[Board for drywall ceilings shall be 5/8-inch 15.9 millimeter thick, regular gypsum wallboard.]

[Board for drywall ceilings shall be 5/8-inch 15.9 millimeter thick, fire-retardant gypsum wallboard.]

[Board for drywall ceilings shall be 5/8-inch 15.9 millimeter thick, insulated gypsum wallboard.]

[Board for drywall ceilings shall be 5/8-inch 15.9 millimeter thick, fire-retardant insulated gypsum wallboard.]

[Board for drywall ceilings shall be 5/8-inch 15.9 millimeter thick, moisture-resistant backing board.]

[Board for drywall ceiling shall be 1/2-inch 12.7 millimeter thick, fire-retardant gypsum wallboard, number of layers as indicated. Top layer shall be insulated fire-retardant gypsum wallboard.]

2.1.3 Regular Gypsum Wallboard

Regular gypsum wallboard shall be Grade R, Form a, at least [1/2] [5/8] inch [12.7] [15.9] -millimeter thick.

Regular gypsum wallboard shall conform to ASTM C 36, 48-inches 1200 millimeter wide and at least [1/2] [5/8] inch [12.7] [15.9] millimeter thick, and shall have [tapered] [square] edges.

2.1.4 Foil Back Gypsum Wallboard

Foil back gypsum wallboard shall be Grade R, Form c, insulated with bright, finished aluminum foil on back surface and shall be at least [1/2] [5/8] inch [12.7] [15.9] -millimeter thick.

2.1.5 Fire-Retardant Gypsum Wallboard

Fire-retardant gypsum wallboard shall be Grade X, Form a, at least [1/2] [5/8] inch [12.7] [15.9] -millimeter thick.

2.1.6 Fire-Retardant Foil Back Gypsum Wallboard

Fire-retardant foil back gypsum wallboard shall be Grade X, Form c, insulated with bright, finished aluminum foil on back surface and shall be at least [1/2] [5/8] inch [12.7] [15.9] -millimeter thick.

2.1.7 Gypsum Backing Board

Gypsum backing board shall conform to ASTM C 442/C 442M and shall be at least 1/2-inch 12.7 millimeter thick [when used as the first ply of a two-ply application], 48-inches 1200 millimeter wide, and in maximum practical length for end use.

2.1.8 Moisture-Resistant Backing Board

Moisture-resistant gypsum backing board shall conform to ASTM C 630/C 630M water-repellent-treated core with Class 2 water-repellent surface, Form a, tapered edge, at least 1/2-inch 12.7 millimeter thick.

2.1.9 Water-Resistant Backing Board

Backing board for use with ceramic tile or other nonabsorbent wall tiles shall be moisture-resistant and thickness as indicated and shall meet the requirements of water resistance of ASTM C 630/C 630M when tested in accordance with ASTM C 473.

2.1.10 Joint Materials

2.1.10.1 Joint Tapes

Joint tape shall be plain or perforated material conforming to ASTM C 475/C 475M, Type II, Styles 1 and 2.

2.1.10.2 Compounds and Adhesives

Joint compound shall be an adhesive, [with] [without] fillers, conforming to ASTM C 475/C 475M, Type I, Style [1] [2] [3].

Laminating adhesive shall be joint compound of the type used for embedding tape or a material recommended by the manufacturer of the gypsum board. Ready-mixed joint compound (Style 3) shall not be used as laminating adhesive.

Adhesive for fastening gypsum wallboard to wood framing shall conform to ASTM C 557.

2.1.11 Metal Fasteners

Nails shall be steel, diamond point, with mechanically deformed shank, and shall conform to ASTM C 515.

Screws shall be steel, self-tapping drywall type, bugle head, self-drilling point; the length shall be as recommended by the drywall manufacturer for

the type of system being installed.

Screws for anchorage of runner channels to studs and securing gypsum backing board to metal studs and furring channels shall be 1 inch 25 millimeter long. Screws for temporary support of gypsum wallboard face ply shall be 1-5/8-inches 41 millimeter long of the same type.

Bolts shall be steel and conform to ASME B18.2.1 ASME B18.2.3.7M. [Type I, regular square] [Type II, regular hexagon] bolts.

Nuts shall be steel, plain, [square] [hexagon], [Type I] [Type II], and shall conform to ASME B18.2.2 ASME B18.2.4M.

Expansion shields shall conform to ASTM C 514, Group, Type, and Class as required.

Staples shall conform to ASTM C 514, galvanized steel, Table IV-A, size as required.

Wire for tying insulation shall be galvanized soft steel wire conforming to ASTM A 641/A 641M, steel number 1010, Class 1 light zinc coating.

2.1.12 Metal Framing Materials

2.1.12.1 Hangers and Inserts

Wire hangers for main runner channels shall be galvanized soft steel wire not less than 28-gage 0.48 millimeter, conforming to ASTM A 641/A 641M, steel number 1010, Class 2 zinc coating.

Hot-dip galvanized flat steel hangers 1 by 3/16 inch 25 by 5 millimeter; galvanized concrete insert-type rod hangers may be substituted for wire hangers.

Tie wires for splicing furring channels or for securing furring channels to main running channels shall be galvanized soft steel wire not less than 16-gage 1.6 millimeter with Class 2 zinc coating.

Clips used in lieu of tie wire shall be galvanized steel equivalent in holding power to that provided by the tie wires and of a type recommended by the gypsum board manufacturer.

2.1.12.2 Suspension, Furring, and Channels

Channels shall be formed from galvanized steel sheets conforming to [SMACNA 1793] [AASHTO M 111], Type I, Class d, ordinary zinc coated (commercial).

Main runner channels shall be 1-1/2-inch 38 millimeter, hot- or cold-rolled, galvanized steel. Hot-rolled channels shall weigh not less than 1.12 pounds per linear foot 16.3 newton per meter. Cold-rolled channels shall be not less than 16-gage 1.6 millimeter uncoated steel with flanges at least 19/32-inch 15.1 millimeter wide.

Furring channels shall be roll-formed, galvanized steel not less than 0.021 inch 0.533 millimeter thick before galvanizing, with steel face width of 1-3/8 inches 35 millimeter and a depth of 7/8 inch 22.2 millimeter, and shall have reinforced, folded edges.

Furring channels for miscellaneous framing shall be 3/4-inch 19 millimeter

wide, cold-rolled galvanized steel not less than 16-gage 1.6 millimeter before galvanizing, and shall weigh not less than 0.33 pounds per linear feet 4.8 newton per meter.

Nailing channels 3/4 by 7/8 inch 19 by 22 millimeter shall be cold-rolled, electrogalvanized steel not less than 25-gage 0.63 millimeter before galvanizing, and shall be formed with a continuous lip to retain ratchet nail fasteners.

2.1.12.3 Resilient Channels

[Resilient channels shall be formed from cold-rolled, electrogalvanized steel, shall have a minimum thickness of 26-gage 0.55 millimeter in a modified hat section with a face width of 1-1/2 inches 38 millimeter, and shall have a depth of 1/2 inch 13 millimeter, with reinforced flange edge and prepunched holes in flange for screw fastening.]

[Resilient channels shall be the gypsum drywall manufacturer's standard design for sound-attenuating channel members.]

2.1.12.4 Steel-Stud Framing

Steel studs, floor and ceiling runners, angle runners, and furring channels shall be electrogalvanized, cold-rolled steel conforming to ASTM C 645 ordinary zinc coated (commercial).

Metal studs shall be formed, zinc-coated sections of channel or Z-shape, of 26-gage 0.55 millimeter minimum thickness, and of widths indicated on the drawings. Stud flanges that come in contact with gypsum wallboard shall be a minimum of [1-1/4] [1-7/16] inches [32] [37] millimeter wide, with a 1/4-inch 7 millimeter stiffening lip with turned or folded edges. Holes shall be regularly punched in studs to facilitate installation of electrical wiring, conduit, or horizontal bracing.

Floor and ceiling runners shall be not less than 26-gage 0.55 millimeter steel before galvanizing, with 1-1/4-inch 32 millimeter flanges, sized to nest with steel stud.

Angle runners shall be 1-3/8 inches by 7/8 inch 34 by 22 millimeter and not less than 22-gage 0.85 millimeter.

2.1.13 Metal Accessories and Trim

NOTE: Drawings must indicate trim location and details.

2.1.13.1 Corner Beads and Trim

Corner beads shall be 30-gage 0.40 millimeter minimum, hot-dip galvanized steel, with 1-1/4- by 1-1/4-inch 32 by 32 millimeter flanges and a 1/8-inch 3 millimeter beaded corner.

Corner beads shall be formed to an angle of 90 degrees and shall be [zinc-coated steel not lighter than 30-gage 0.40 millimeter before coating with wings not less than 7/8-inch 23 millimeter wide and perforated for nails and cement treatment] [zinc-coated steel or protected aluminum with legs approximately 3/4-inch 19 millimeter wide and cemented under pressure

with a rubber-base adhesive to tough-paper jointing-tape wings not less than 1-inch 25 millimeter wide.] Zinc-coated steel shall conform to SMACNA 1793, and AASHTO M 111, Type I, Class C.

Casing trim shall be 28-gage 0.47 millimeter nominal thickness, hot-dip galvanized steel channel, depth as required for wallboard, with attached tape flange.

2.1.13.2 Metal Base

NOTE: Drawings must indicate whether flush-type or reveal-type base is required.

Metal base shall be fabricated from hot-rolled strip steel, commercial quality, in accordance with ASTM A 1011/A 1011M and shall be 2-1/2-inches 63 millimeter wide, (18-gage) 1.3 millimeter, flush face or reveal face as indicated, factory primed with manufacturer's standard rust-inhibiting primer, with welded exterior corners, splice, and attachment plates.

2.1.14 Control Joint Material

NOTE: Wallboard surfaces must be isolated from all structural elements (except the floor) by control joints or other means where a partition or ceiling abuts a structural element; where a dissimilar wall or ceiling assembly occurs; and where the construction changes within the plane of the partition or the ceiling.

Drawings must indicate the location and spacing of control joints.

[Control joint material shall be one piece, 29-gage 0.44 millimeter, roll-formed zinc, formed 7/16-inch deep by 1/4-inch 11.1 millimeter deep by 6.4 millimeter wide with a perforated flange 7/8-inch 22.2 millimeter wide on each side of the joint opening, with a protective plastic strip.]

[Control joints shall be formed of casing bead trim and installed back to back over separate framing or furring members. A space of 3/16 inch 4.8 millimeter shall be maintained between opposite casing beads.]

2.1.15 Calking

Control joint calking shall be as recommended by the drywall manufacturer and shall be the same type used for partition and ceiling assemblies when the fire rating and STC were established.

2.1.16 Dust Membrane

Dust membrane shall be clear, 4-mil 0.1016 millimeter polyethylene film, conforming to ASTM D 2103, Type 13000.

2.1.17 Fire-Insulation Blankets

Insulation shall be semirigid, paperless, spun mineral-fiber mat, thickness

and width as indicated, and shall conform to ASTM C 553. Material shall be UL listed with a Class A fire-hazard classification as defined in NFPA 101; flame spread shall not exceed 25, fuel distributed 20, smoke developed 0 when tested in accordance with the tunnel test of ASTM E 84.

2.2 SOURCE QUALITY CONTROL

Gypsum wallboard shall be tested at the manufacturing plant in accordance with ASTM C 473 for flexural strength, thickness and weight of paper and predecorated board surfacing, and thickness of edge of recessed or tapered-edge gypsum wallboard.

PART 3 EXECUTION

3.1 PREPARATION

Defective wall and ceiling surfaces shall be corrected prior to application of drywall materials.

3.2 ERECTION, INSTALLATION, AND APPLICATION

3.2.1 Framing

Framing members to receive gypsum wallboard shall be straight, plumb, and true and spaced not to exceed the maximum spacings for the board thickness.

3.2.2 Board Length

Boards of maximum practical length shall be used to minimize the number of end joints. Edges of boards shall be butted together but shall not be forced.

3.2.3 Staggering Boards

Joints shall be staggered and shall not be aligned with the edge of an opening nor positioned so that the corners of four boards will meet at a common point.

3.2.4 Joints

All abutting ends or edge joints shall occur over solid bearing, (wood joists, wood furring, or over the web surface of furring channels) and shall be fitted neatly and accurately, with all end joints staggered. Wallboard shall be supported as recommended by the manufacturer, with additional framing at all cutouts and openings.

3.2.5 Ceiling Abuts Dissimilar Wall

Perimeter of ceilings shall be finished with an edge bead trim where ceiling abuts dissimilar wall materials.

3.2.6 Wall Trim

Trim shall be applied to wall and accurately aligned with the finished ceiling. Ceiling board edges that adjoin walls shall be laid on the horizontal leg of the trim strip, and the space behind the junction shall be closed with a dust membrane. Membrane shall be applied in advance of the wallboard application.

3.2.7 Corners and Edges

Exposed corners and edges and the perimeter of door, window, and borrowed-light frames shall be finished with the specified metal trim.

3.2.8 Tolerance and Alignment

Finished wallboard application shall be plumb and true, with all joints aligned to within a 1/16-inch 1.6 millimeter tolerance and with all surfaces shimmed and aligned to a plane and even surface having a maximum variation of 1/8 inch in 8 feet 3 millimeter in 2438 millimeter.

3.2.9 Midheight Horizontal Bracing

Midheight horizontal bracing shall be continuous in partitions for all heights above 8 feet 6 inches 2600 millimeter. Bracing shall be standard runner channel for stud size specified. Channel shall be secured rigidly in place at each stud.

3.2.10 Partition Bracing

Where gypsum wallboard partitions do not extend to the underside of construction above, they shall be braced at the top channel with a V-frame perpendicular to the line of the partition located 18 feet 8 inches 5690 millimeter maximum on center where partitioning is not intersected or otherwise braced. V-braces shall be composed of two 2-by 2-by 1/8-inch 50 by 50 by 3 millimeter angles attached to metal clips. When brace is in final position, it shall be welded, or holes shall be drilled and the brace bolted in permanent position. Partitions shall not exceed 16 feet 4880 millimeter in height.

3.2.11 Ply

[Wallboard shall be applied to ceilings in single-ply, with the long dimension of the wallboard at right angle to the furring members as specified herein and in accordance with the drywall manufacturer's instructions for the type and classification of wall assembly indicated.]

[Wallboard shall be applied to walls in single-ply, horizontal and vertical application, and in two-ply as specified herein and in accordance with the drywall manufacturer's instructions for the type and classification of wall assembly indicated.]

[Gypsum wallboard face layers shall be cut to full floor-to-ceiling height for vertical installation. Ends of the face ply shall fit over the runner flanges. Vertical joints shall occur over studs and shall be staggered on opposite sides of the partition.]

3.2.12 Fastening

Board shall be fastened with [power-driven, phillips-head screws at a maximum spacing of 12 inches 300 millimeter on center in the field of the board and at 8 inches 200 millimeter on center at edges and along abutting ends] [nails at a maximum spacing of 6 inches 150 millimeter on center.]

[Nails] [Screws] shall be placed not closer than 3/8 inch 10 millimeter to ends or edges of boards.

3.2.13 Installation of Control Joints

Control joints shall be provided where indicated and shall be [stapled]
[screwed] in place.

3.2.13.1 Ceiling

Ceiling control joints fastened securely in place shall be provided at
spacing not to exceed 50 feet 15200 millimeter in each direction.

3.2.13.2 Vertical

Vertical control joints in long runs of drywall partitions shall be
provided at spacing not to exceed 30 feet 9100 millimeter on center; at
partition intersections with structural floors and columns; and at walls of
dissimilar materials.

3.2.13.3 Abutting Concrete Slabs

Where tops of drywall partitions abut concrete slab floors, a 1/2 inch 13
millimeter gap for deflection shall be provided between the top of stud and
bottom of floor slab. A double slip track consisting of an inside and
outside deep leg track shall be provided with studs screwed to the inside
track. Runner tracks shall be embedded in calking or in an adhesive
recommended by the drywall manufacturer, then stub-nailed in place.

**NOTE: The deep leg tracks are not standard and the
gage, width and leg length must be specified for
each particular application.**

3.2.14 Acoustical Sound Barrier

Glass-fiber or mineral-wool insulation shall be provided as required for an
acoustical sound barrier. Where drywall partitions abut structural columns
or dissimilar wall materials, 1/2-inch 13 millimeter of insulation shall be
provided between web of stud and column or wall.

3.2.15 Trim

Edges of exposed drywall shall be trimmed with the specified metal bead.

3.2.16 Fire-Insulation Blankets Application

Insulation shall be securely stapled to wood framing members and wired to
steel members in accordance with the gypsum wallboard manufacturer's
written instructions.

3.2.17 Framed Openings

[Support members shall be provided at ceiling openings as required for
access panels, recessed lighting fixtures, and heating and ventilating
ducts.]

[Support members shall be not less than 1-1/2-inch 40 millimeter main
runner channels located where required and shall be provided in sufficient
number to support furring and wallboard attachment.]

3.2.18 Joint Finishing

[Joints between wallboard panels and joints at metal trim shall be reinforced with joint tape and embedding-type joint compound and concealed with at least two applications of finishing compound in accordance with the printed instructions of the manufacturer of the gypsum wallboard. Screw depressions shall be filled with at least three coats of joint compound. Flanges at corner beads, edge trim, and control joints shall be concealed with at least two applications of joint compound, feathered and sanded smooth.]

[Joint and screw-depression treatment shall be accomplished after wallboard is in place. A minimum of 24 hours' drying time shall be allowed between the application of each coat. Where necessary, the last coating shall be sanded lightly with 2/0 sandpaper to leave a smooth finish flush with the paper face of the wallboard.]

[Control joints shall be concealed with three coats of joint cement. After the second coating has dried, a third coating shall be applied very thin to a smooth surface and feathered out 12 to 16 inches 300 to 400 millimeter on both sides of the joint. If necessary, the joints, when dry, shall be sanded lightly with 2/0 sandpaper to leave a smooth, flush surface. Care shall be taken not to scuff the paper surface of the wallboard when sandpapering the cement. Water content of the finish bedding cement coat shall be in strict accordance with the manufacturer's specifications.]

3.2.19 Moisture Proofing

Edges of gypsum wallboard adjoining tile bases and cut edges in areas of high humidity shall be sealed before erection with a waterproofing agent, plastic tape, joint compound, or material approved by the manufacturer of the wallboard.

3.2.20 Installation of Gypsum Drywall Ceilings

3.2.20.1 Metal-Framed Drywall Ceilings

Metal-framed drywall ceilings shall be installed and finished as specified and in accordance with the drywall manufacturer's written instructions for drywall ceilings installed over suspended or furred metal grilles and as required for the indicated fire rating and STC.

3.2.20.2 Wood-Framed Drywall Ceilings

[Wallboard shall be applied and finished as specified and in accordance with the drywall manufacturer's written instructions for contact application.]

[Gypsum wallboard shall be [nail-] [screw-]fastened to [wood furring] [steel furring channels] [resilient steel furring channels] and finished in accordance with the manufacturer's written instructions.]

3.2.20.3 Metal Suspension Grilles

[Main runner channels suspended or furred from the bottom chord of steel joists shall have the wire hanger looped around the runner channel and twisted a minimum of three times around itself. Hangers shall be plumb and spaced at not more than 4 feet 1200 millimeter on center.]

[Main runner channels suspended from concrete slab construction shall have hanger wires embedded in concrete construction by an approved method before concrete is placed, or they shall have hanger wires attached to approved inserts. Hanger straps shall be hung plumb and connected with 3/8-inch 10M (3/8-inch) galvanized bolts and nuts to anchors made of hanger strap and set in the concrete. Hangers shall be spaced at not more than 4 feet 1200 millimeter on center. Runner channels shall be braced in position true and rigid and as required to prevent distortion. At least 1-inch 25 millimeter clear space shall be maintained between channel and wall or other building elements.]

[Main runner channels shall be spliced with 12-inch 300 millimeter nested laps and tied securely near each end of the splice with two loops of 8-gage 4.3 millimeter hanger wire. Splices shall be staggered.]

[Furring channels or resilient channels shall be installed at right angles to main runner channels or structural supporting members, and shall be fastened with clips or tie wires at a maximum spacing of 48 inches 1200 millimeter on center. Resilient channels shall be screw fastened to wood members. Furring channels or resilient channels shall be spaced at 24 inches 600 millimeter on center. Channels shall be extended to within 2 inches 50 millimeter of perimeter walls and abutting elements. Channels shall not be anchored or buried in the wall.]

[Furring shall be spliced with 8-inch 200 millimeter nested laps and tied securely near each of the splice with two loops of 16-gage 1.6 millimeter tie wire. Splices shall be staggered.]

[Suspension grilles shall be reinforced with 3/4-inch 19 millimeter, cold-rolled channels or with furring channels at light troffers or any openings that interrupt the main runner or furring channels. Reinforcing channels shall be wire tied to and parallel to the main runner channels.]

3.2.21 Steel Stud Framing

NOTE: Drawings must indicate stud width, height, partition details, and staggered stud arrangement where used. Note that steel stud drywall partitions are limited to nonload-bearing types and maximum partition height is based on stud width.

Floor and ceiling runner tracks shall be accurately aligned and securely attached to floors, structural ceilings, finished ceilings, or roof deck. Track shall be attached to concrete slabs with [concrete stud nails] [anchors at 24 inches 600 millimeter on center]; track shall be attached to [metal ceiling grilles with a double strand of 18-gage 1.3 millimeter tie wire spaced at no more than 16 inches 400 millimeter on center], [steel framing or steel joists with machine bolts at 24 inches 600 millimeter on center], [suspended finish ceiling with [toggle] [molly bolts],] [wood framing with [lag bolts] [wood screws] at 24 inches 600 millimeter on center].

Runners shall extend beyond open-end partitions for at least 12 inches 300 millimeter. Upon installation of end studs, runner extensions shall be bent and nested with the stud and attached with at least two sheet metal screws.

Runners shall be furnished in longest practical lengths with butt joints.

Steel studs shall be size indicated, spaced at 24 inches 600 millimeter on center. A maximum height span of 12 feet 3660 millimeter shall be used for 2-1/2-inch 68 millimeter studs. Maximum height span for 3-5/8-inch 92 millimeter studs shall be 16 feet 4880 millimeter.

Studs for pipe chases, ventilating shaft framing, and steel column or beam fireproofing shall be the size indicated, spaced 16 inches 400 millimeter on center.

Studs shall be positioned plumb in ceiling and floor runners and attached with at least one self-tapping screw on each side of the stud ends. Studs shall be installed in continuous lengths with no splicing.

Stud shall be placed no more than 1/2 inch 13 millimeter from door frames, framed openings, abutting partitions, and partition corners. Studs shall be securely anchored direct or with spacers to door and borrowed-light frames by [bolt] [screw] attachment.

Top-runner channels of intersecting partitions shall have the web extended across the intersected channel. Extended web shall be fastened with two screws. Flanges of the intersecting channel shall be cut, bent, and fastened to the flanges of the continuously intersected channel with two screws in each flange.

Partition reinforcement shall be provided over door and borrowed-light frame openings and, where required, for support of plumbing fixtures, accessories, and electrical and mechanical equipment. Reinforcement shall consist of cut-to-length sections of runner track or cold-rolled channels extending at least 2 feet 600 millimeter on each side of the opening and braced and fastened to studs in accordance with the manufacturer's directions.

Head and jamb framing at door openings shall consist of a tube made up of one runner channel and one stud. Tubes at door jambs shall extend the full height of the partition and shall be fastened together with screws at a minimum of 24 inches 600 millimeter center-to-center each flange. Tube over the door head shall be fastened together with a minimum of three screws each flange. Runner channel section of the header tube shall be cut 12-inches 300 millimeter longer than the span between the two jamb studs. A web bend shall be made with 6 inches 150 millimeter extended in a vertical direction on each jamb tube and fastened with a minimum of two screws. Flanges shall be extended horizontally and fastened to the flanges of the vertical stud. Cut-to-length studs shall then be positioned at not more than 16-inch 400 millimeter spacing over the door opening and secured to the tube with a web flange bend with a minimum of two screws. Runner channel sections of tubes shall be secured to the door frame head and jamb with two 1/4-inch M6 (1/4-inch) machine bolts, nuts, and washers.

3.2.22 Fixture Attachment

**NOTE: Include the following paragraph when
supplementary reinforcement is required for
attaching cabinets or shelving. Drawings must
indicate the type of mounting device or
reinforcement required.**

[Wood] [metal] mounting strips shall be provided for cabinets and shelving as indicated. Mounting strip shall be braced and secured between studs; attachment bolts that extend through bracing, studs, and drywall shall be provided.

3.2.23 Double Partition Steel Stud Framing

NOTE: Include the following paragraph when design and sound transmission requirements dictate the use of a steel double stud or staggered stud partition.

Drawings must indicate partition width, stud width, stud spacing, thickness of wallboard materials, and blanket insulation arrangement within the partitions.

Double partition stud framing shall consist of two completely separate steel stud partitions with stud width and spacing as indicated. Stud partition shall be constructed as specified herein and in accordance with gypsum wallboard manufacturer's written instructions.

Insulation shall be of thickness indicated and [fastened securely to stud framing line as indicated] [shall be woven through alternating studs in each partition line, and shall be fastened securely to each stud.]

3.2.24 Steel Framed Drywall Partitions

3.2.24.1 Single-Layer Partition Over Steel Framing

NOTE: Select one of the following paragraphs based on the required fire rating or STC or on a combination of both. Delete inapplicable paragraphs.

Refer to manufacturer's data sheets for tested partition assemblies. Note that STC is based on stud widths in addition to wallboard materials, thickness, and sound attenuation blankets.

[Gypsum wallboard shall be applied and finished as specified and in accordance with the drywall manufacturer's written instructions for a UL-approved, 1-hour fire-rated, single-layer, screw-stud drywall partition, with an STC of at least [41] [47]. [All perimeter joints shall be calked.]]

[Gypsum wallboard shall be applied and finished as specified and in accordance with the drywall manufacturer's written instructions for a non fire-rated, single-layer, screw-stud drywall partition and with a nonrated STC of at least [40] [____].]

3.2.24.2 Multiple-Layer Partition Over Steel Framing

[Gypsum wallboard shall be applied and finished as specified and in accordance with the drywall manufacturer's written instructions for a UL-approved, [2-hour] [1-1/2-hour] fire-rated, two-layer, screw-stud drywall partition, with joints staggered, mineral wool, sound attenuation blankets, perimeter calked, and with an STC of at least [53] [50].]

3.2.24.3 Metal Furring

NOTE: If furring for masonry walls is required, delete inapplicable paragraphs, and verify inclusion of wood furring for masonry walls in Section 06100 ROUGH CARPENTRY.

Drawings must indicate type of furring, furring spacing and thickness of wallboard.

[Furring to receive gypsum wallboard shall be the specified galvanized-steel furring channels of the type and spacing as indicated. Clips and fasteners shall be provided as required for type of installation and in accordance with the wallboard manufacturer's written instructions. Furring members shall be installed plumb and true, shimmed to a plane surface, and spaced as indicated. Plane surface shall vary less than 1/8 inch in 8 feet 3 millimeter in 2438 millimeter.]

[Metal wall furring channels shall be installed vertically with horizontal spacing of not over 24 inches 600 millimeter on center and shall be securely anchored to walls with suitable fasteners spaced 24 inches 600 millimeter on center. Fasteners shall penetrate alternate wing flanges (staggered) of the furring channel. Metal wall furring channels shall also be placed horizontally at floors and ceilings; at heads of door frames; over and under wall louvers, access panels, and other opening in the walls, and shall be securely anchored as specified above.]

3.2.25 Wood-Framed Drywall Partitions

NOTE: Coordinate this section with Section 06100 ROUGH CARPENTRY to ensure the proper partition framing.

Drawings must indicate stud width, height, partition details, and staggered stud or special framing details.

3.2.25.1 Single-Layer Partition Over Wood Stud Framing

[Gypsum wallboard shall be applied and finished as specified and in accordance with the drywall manufacturer's written instructions for a UL-approved, [45 minute] [1-hour] fire-rated, single-layer, drywall partition, [over wood framing and shall have an STC of at least 34 and a drywall thickness of at least 1/2 inch 50 millimeter] [screw fastened to resilient channels applied at right angles to wood framing at both sides of the partition, and spaced 24 inches 600 millimeter on center. STC shall be 44 or higher.]]

[Gypsum wallboard shall be applied and finished as specified and in 1-hour fire-rated, drywall partition, single-layer, [nail-] [screw-] applied to stagger-stud wood framing. STC shall be 53 or higher.]

3.2.25.2 Double-Layer Partition Over Wood Stud Framing

Gypsum wallboard shall be applied and finished as specified and in accordance with the drywall manufacturer's written instructions for a UL-approved, 2-hour fire-rated, double-layer, drywall wood partition and shall have an STC of at least 40.

3.2.25.3 Wood Furring

[Wood furring to receive gypsum wallboard shall be inspected and approved for alignment, plumbness, and true plane surface before proceeding with the work. Plane surface shall vary less than 1/8 inch in 8 feet 3 millimeter in 2438 millimeter.]

3.2.25.4 Wallboard on Masonry

NOTE: Drawings must indicate required fire rating and STC.

Gypsum wallboard shall be applied and finished as specified and in accordance with the drywall manufacturer's written instructions for a [single-] [double-] layer application [of insulated gypsum wallboard] to masonry walls to achieve the indicated fire rating and STC.

3.2.26 Structural Frame Fireproofing

NOTE: Drawings must indicate details of fireproofing, furring members, and thickness and number of layers of drywall.

The selections listed below conform to manufacturer's listed data for fireproofing with drywall. Manufacturer must be consulted for required fire ratings in excess of those indicated.

3.2.26.1 Column Fireproofing

[Steel columns shall be fireproofed with [three] [two] layers of 5/8-inch 15.9 millimeter thick, Grade X, fire-retardant, gypsum wallboard, [laminated and wired to column and furring] as indicated and in accordance with the gypsum wallboard manufacturer's written instructions for a UL-approved, [2] [3] -hour fire-rated construction. [Wallboard shall be attached to 1-5/8-inch 41 millimeter steel studs located at each corner of the columns.] Joints shall be finished. Exposed corners and edges shall be finished with metal corner beads as specified.]

[Steel columns shall be fireproofed with two layers of 1/2-inch 12.7 millimeter thick, Grade X fire-retardant, gypsum wallboard, as indicated and in accordance with the gypsum wallboard manufacturer's written instructions for a UL-approved, 1-hour fire-rated construction. Joints shall be finished. Exposed corners and edges shall be finished with metal corner beads as specified.]

3.2.26.2 Beams, Girders, and Trusses

Beams, girders, and trusses shall be fireproofed with [two] [one] layer of 5/8-inch 15.9 millimeter thick, Grade X, fire-retardant, gypsum wallboard, as indicated, and in accordance with the gypsum wallboard manufacturer's written instructions for a UL-approved, [1] [2] -hour fire-rated construction. Joints shall be finished. Exposed corners and edges shall be finished with metal corner beads as specified.

3.2.27 Surface Finishing

Surface defects and damage shall be corrected to leave wallboard smooth, uniform in appearance, and ready to receive finish as specified in other sections of these specifications.

All control joints shall be properly and completely filled with the specified sealant.

Joints shall be sanded when dry after each application of joint compound. Final finish shall be uniformly smooth and flush with the paper face of the wallboard.

Surfaces of the work, and adjacent surfaces soiled as a result of this work shall be cleaned.

-- End of Section --